Environment Canada / Environnement Canada

National Overview

National Pollutant Release Inventory

Canadian Environmental Protection Act, 1999

www.ec.gc.ca/npri

Off-site Transfers for Recycling and Energy Recovery

Canada

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National Overview – National Pollutant Release Inventory 2002

Off-site Transfers for Recycling and Energy Recovery

Canadian Environmental Protection Act, 1999

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1. Introduction

The National Pollutant Release Inventory (NPRI) is at the centre of the Government of Canada's efforts to track toxic substances. It is a legislated inventory of pollutants released to the environment. The NPRI was established in 1992 to inform Canadians about releases of pollutants from facilities in their communities, including the amounts discharged to the air, water and land and by underground injection and the amounts sent to other facilities for disposal, treatment or recycling and energy recovery. The NPRI is constantly evolving. Since it was established, substances have been added and deleted, the thresholds at which substances are reported have been adjusted, and the scope of the inventory has been expanded to collect data on recycling and pollution prevention. Further refinements are planned for future years. Please refer to **Appendix A** for information on:

- what is new for the 2002 NPRI,
- the NPRI substance list for 2002,
- the 2002 National Overview Series, and
- new groupings for releases and transfers.

See **Appendix B** for definitions of releases, disposals and transfers.

In 2002, criteria air contaminants (CAC) were added to the NPRI for the first time. As a result, the number of NPRI substance reports in the 2002 NPRI has almost doubled compared to 2001. For the purpose of comparing the 2002 data with those submitted in 2001, the information collected on CAC for 2002 are summarized separately. All non-CAC substance data collected for the 2002 reporting year will be referred to as "NPRI pollutants". The reasons for separating CAC substance data from non-CAC data are as follows:

- The information reported for CAC is limited to releases to air. However, the reports of other pollutants cover releases to all environmental media – air, water and land. They also cover disposal and recycling.
- Reporting separately allows for better comparison to historic NPRI data.
- The information for CAC from point sources for 2002 can be presented along with historic information on area sources to give a more complete picture of overall releases.

There are relatively few CAC, and they have always been discussed individually because each one poses different risks to human health and the environment. NPRI pollutants are sometimes grouped together to reveal trends, but it is not correct to add the CAC to the other NPRI pollutants because many NPRI pollutants are also volatile organic compounds (VOC) and this would lead to double counting. (See *2002 National Overview – Reporting Requirements*, **section 2.9**, for more information on double counting.)

The complete list of CAC and non-CAC data for the 2002 reporting year can be found on the NPRI Web site at **www.ec.gc.ca/npri**.

2. Off-site Transfers for Recycling and Energy Recovery in 2002

In 2002, 3 191 facilities reported releases of NPRI pollutants; of those facilities, 1 012 submitted data on off-site transfers for recycling and energy recovery totalling 1 235 268 tonnes. That was an increase of 107 218 tonnes (or 9.5%) from 2001. Off-site recycling and energy recovery activities in 2002 can be broken down as follows (see also **table 2–1** and **figure 2–1**):

- other recovery, reuse and recycling – 869 849 tonnes (70.4% of national total);
- metals and metal compounds – 263 247 tonnes (21.3%);
- acids or bases – 62 803 tonnes (5.1%);
- catalysts – 12 412 tonnes (1.0%);
- solvents – 11 598 tonnes (0.9%);

- energy recovery – 8 923 tonnes (0.7%);
- organic substances – 3 437 tonnes (0.3%);
- inorganic materials – 2 199 tonnes (0.2%);
- pollution abatement residues – 745 tonnes (0.1%); and
- used oil – 56 tonnes (<0.1%).

Table 2–1

NATIONAL SUMMARY OF OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY IN 2002

Amounts (tonnes)

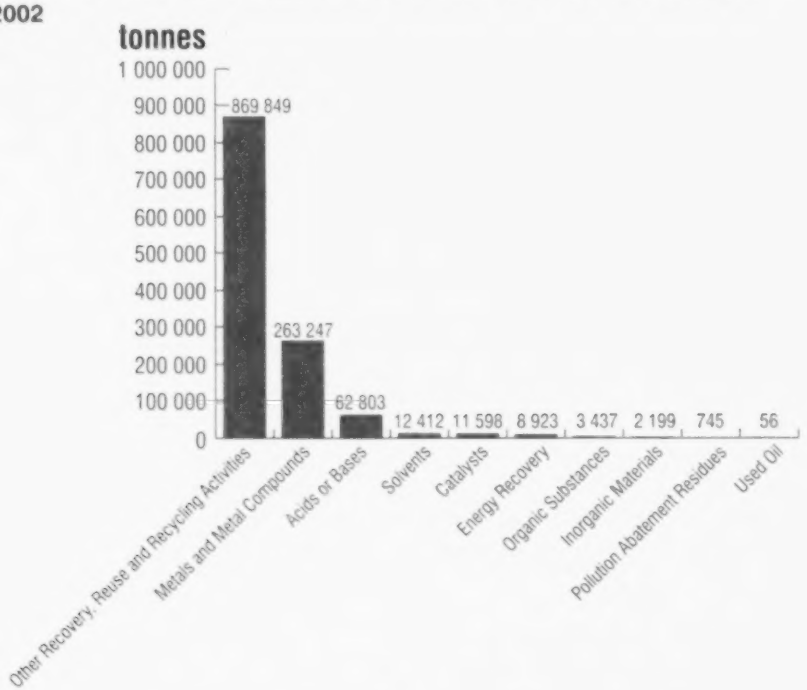
Off-site transfers for recycling and energy recovery

	2001	2002	Change 2002–2001	% Change 2002–2001
Total facilities	873	1 012	139	15.9
Number of different pollutants reported	102	108	6	5.7
Total number of pollutant reports	2 569	3 087	518	20.2
Recycling	1 118 247.7	1 226 344.9	108 097.2	9.7
Energy recovery	9 801.9	8 922.9	-879.1	-8.9
Total transfers for recycling and energy recovery	1 128 049.6	1 235 267.8	107 218.1	9.5

Note: *Because of rounding of transfer quantities, totals may not equal the sum of the individual values.*

Figure 2–1

NATIONAL SUMMARY OF OFF-SITE TRANSFERS FOR RECYCLING AND ENERGY RECOVERY IN 2002



3. NPRI Pollutants Transferred Off Site for Recycling and Energy Recovery in the Largest Quantities in 2002

In 2002, the following six pollutants accounted for 94% (1 160 664 tonnes) of all pollutants transferred off site for recycling and energy recovery:

- hydrogen sulphide – 864 012 tonnes (69.9% of the national total);
- copper (and its compounds) – 105 647 tonnes (8.6%);
- sulphuric acid – 75 219 tonnes (6.1%);
- zinc (and its compounds) – 58 499 tonnes (4.7%);
- lead (and its compounds) – 32 935 tonnes (2.7%); and
- manganese (and its compounds) – 24 352 tonnes (2.0%).

The total amount of hydrogen sulphide listed above was attributed to an off-site transfer for recycling by facilities in the Support Activities for Mining and Oil and Gas Extraction sector. Most of the substances (863 985 tonnes) came from this sector and the remaining amount (27 tonnes) came from three other sectors. In 2001, this sector reported that an estimated 900 794 tonnes of hydrogen sulphide had been transferred off site for recycling. Thus the amount reported in 2002 was a decrease of 36 782 tonnes (4.1%).

In the case of sulphuric acid which was third in the amounts of substances transferred off site for recycling in 2002, there was a decrease of an estimated 534 tonnes (0.7%) from 2001. The recycling of sulphuric acid in 2002 can be broken down as follows:

- 12.74 tonnes as an off-site transfer for recycling – recovery of inorganic materials, a significant increase of an estimated 12.64 tonnes (99%) from 2001; and
- 11 457 tonnes as an off-site transfer for recycling – recovery of catalysts, an increase of 1 009 tonnes (9.6%) from 2001.

It is important to note that increases and decreases in off-site transfers for recycling and energy recovery can have numerous causes including the following:

- facilities reporting to the NPRI for the first time;
- facilities using improved estimation methods;
- changes in facility infrastructure and process or operation; and
- use of pollution prevention techniques.

These possibilities should be considered whenever NPRI information is used.

Table 3–1

25 LARGEST QUANTITIES OF NPRI POLLUTANTS TRANSFERRED OFF SITE FOR RECYCLING AND ENERGY RECOVERY IN 2002

		Off-site Transfers for Recycling and Energy Recovery (tonnes)				
CAS No.	Pollutant	Energy Recovery	Solvents	Organics	Metals	Inorganic
7783-06-4	Hydrogen sulphide	0.00	0.00	26.64	0.00	0.00
NA	Copper (and its compounds)	0.02	0.01	0.00	105 466.46	20.81
7664-93-9	Sulphuric acid	0.00	0.00	0.00	151.16	12.74
NA	Zinc (and its compounds)	59.18	0.00	11.10	56 870.02	1 028.21
NA	Lead (and its compounds)	46.34	0.00	0.00	32 648.96	7.73
NA	Manganese (and its compounds)	2.20	0.00	14.40	23 242.53	382.74
NA	Chromium (and its compounds)	0.00	0.00	4.66	18 559.21	10.97
NA	Nickel (and its compounds)	0.60	0.00	3.89	16 122.74	2.49
7429-90-5	Aluminum (fume or dust)	0.00	1.93	0.00	6 822.12	0.00
1330-20-7	Xylene (mixed isomers)	2 766.12	3 979.17	58.02	0.01	0.00
108-88-3	Toluene	2 271.67	2 784.85	42.81	0.05	0.00
78-93-3	Methyl ethyl ketone	1 101.42	2 511.91	0.00	0.00	0.00
107-21-1	Ethylene glycol	158.75	45.83	1 878.38	0.00	1.42
7647-01-0	Hydrochloric acid	0.00	0.00	0.00	0.00	62.70
7440-62-2	Vanadium (except when in an alloy) and its compounds	0.00	0.00	0.00	532.47	136.69
67-56-1	Methanol	646.18	238.87	2.58	0.00	0.00
1313-27-5	Molybdenum trioxide	0.00	0.00	0.00	773.21	0.00
NA	Ammonia (total)	0.00	0.00	85.78	157.88	343.01
74-85-1	Ethylene	0.00	0.00	781.44	0.00	0.00
67-63-0	Isopropyl alcohol	268.01	381.23	9.21	0.00	0.00
108-10-1	Methyl isobutyl ketone	161.25	429.23	0.00	0.01	0.00
100-41-4	Ethylbenzene	308.27	268.04	4.71	0.00	0.00
7789-75-5	Calcium fluoride	0.00	0.00	0.00	0.00	91.93
108-95-2	Phenol (and its salts)	0.00	0.00	315.30	0.00	0.00
NA	Arsenic (and its compounds)	0.00	0.00	0.00	420.59	62.51

Acids or Bases	Catalysts	Abatement Residues	Used Oil	Other	2002	2001	Change 2002–2001	%Change 2002–2001
0.01	0.00	0.20	0.00	863 985.00	864 011.85	900 794.19	-36 782.34	-4.08
28.82	6.35	5.98	0.00	118.73	105 647.20	40 097.56	65 549.64	163.48
62 048.16	11 457.00	0.00	0.00	1 549.98	75 219.05	75 753.18	-534.13	-0.71
0.00	6.42	197.14	48.47	278.88	58 499.42	39 182.76	19 316.67	49.30
8.44	0.00	9.81	1.32	212.01	32 934.60	10 116.42	22 818.18	225.56
0.00	0.04	93.27	0.00	616.72	24 351.89	12 726.07	11 625.82	91.36
0.00	0.00	5.20	0.00	140.59	18 720.63	7 638.07	11 082.57	145.10
0.00	373.97	4.49	0.00	97.19	16 605.36	5 232.95	11 372.41	217.32
0.00	0.00	3.02	0.00	612.92	7 439.98	4 216.33	3 223.65	76.46
0.00	0.00	0.00	0.50	135.13	6 938.95	7 551.03	-612.08	-8.11
0.00	0.00	0.00	0.13	199.53	5 299.03	5 285.64	13.39	0.25
0.00	0.00	0.00	0.00	16.86	3 630.18	3 450.07	180.11	5.22
0.00	0.00	0.01	0.49	108.55	2 193.42	3 383.70	-1 190.28	-35.18
455.53	0.00	0.00	0.00	964.52	1 482.76	1 233.56	249.20	20.20
0.00	416.53	14.21	0.00	126.23	1 226.12	1 119.93	106.19	9.48
0.00	0.00	5.18	0.60	11.63	905.04	1 063.50	-158.46	14.91
0.00	55.32	0.00	0.00	0.03	828.56	571.40	257.17	45.00
0.00	14.42	148.72	0.00	71.60	821.41	1 170.83	-349.41	-29.84
0.00	0.00	0.00	0.00	0.00	781.44	0.00	781.44	NA
0.00	0.00	0.00	0.00	4.76	663.21	811.11	-147.90	-18.23
0.00	0.00	0.00	0.00	1.85	592.35	656.66	-64.32	-9.79
0.00	0.00	0.00	0.00	0.43	581.45	728.15	-146.70	-20.15
0.00	0.00	246.96	0.00	241.00	579.89	167.70	412.19	254.90
232.78	0.00	0.96	0.00	0.20	549.25	509.58	39.66	7.78
0.00	0.00	2.32	0.00	11.49	496.91	496.24	0.67	0.14

4. Industrial Sectors Transferring the Largest Quantities of NPRI Pollutants Off Site for Recycling and Energy Recovery in 2002

In 2002, the following five industrial sectors reported the largest off-site transfers for recycling and energy recovery, accounting for an estimated 1 092 184 tonnes (88.4% of the national total) (see **table 4–1**):

- Support Activities for Mining and Oil and Gas Extraction: 864 087 tonnes (70% of the national total);
- Motor Vehicle Parts Manufacturing: 67 430 tonnes (5.5%);
- Petroleum and Coal Products Manufacturing: 67 177 tonnes (5.4%);
- Electricity Generation, Transmission and Distribution: 55 406 tonnes (4.5%); and
- Non-Ferrous (excluding aluminum) Production and Processing: 38 084 tonnes (3.1%).

Table 4–1

INDUSTRIAL SECTORS TRANSFERRING THE LARGEST QUANTITIES OF NPRI SUBSTANCES OFF-SITE FOR RECYCLING AND ENERGY RECOVERY IN 2002

		Off-site Transfers for Recycling and Energy Recovery				
CAS No.	Pollutant	Energy Recovery	Solvents	Organics	Metals	Inorganics
Rank # 1	**NAICS 2131 – Support Activities – Mining & Oil & Gas Extraction**					
47783-06-4	Hydrogen sulphide	0.00	0.00	0.00	0.00	0.00
95-63-6	1,2,4-Trimethylbenzene	0.00	62.75	0.00	0.00	0.00
1330-20-7	Xylene (mixed isomers)	0.00	23.78	0.00	0.00	0.00
108-88-3	Toluene	0.00	9.50	0.00	0.00	0.00
110-54-3	*n*-Hexane	0.00	5.60	0.00	0.00	0.00
67-56-1	Methanol	0.00	5.29	0.00	0.00	0.00
67-63-0	Isopropyl alcohol	0.00	5.13	0.00	0.00	0.00
Total		0.00	112.05	0.00	0.00	0.00
Rank # 2	**NAICS 3363 – Motor Vehicle Parts Manufacturing**					
NA	Zinc (and its compounds)	0.00	0.00	0.00	18 783.83	303.04
NA	Manganese (and its compounds)	0.00	0.00	14.40	17 118.07	32.58
NA	Chromium (and its compounds)	0.00	0.00	4.66	15 137.89	0.00
NA	Nickel (and its compounds)	0.00	0.00	3.89	11 844.52	0.00
NA	Copper (and its compounds)	0.00	0.00	0.00	4 094.92	0.00
7429-90-5	Aluminium (fume or dust)	0.00	0.00	0.00	2 336.60	0.00
NA	Lead (and its compounds)	42.51	1 797.85	0.00	0.00	0.00
Total		42.51	1 797.85	22.95	69 315.83	335.62
Rank # 3	**NAICS 3241 – Petroleum and Coal Products Manufacturing**					
7664-93-9	Sulphuric acid	0.00	0.00	0.00	151.16	12.74
108-95-2	Phenol (and its salts)	0.00	0.00	0.00	0.00	0.00
7440-62-2	Vanadium (except when in an alloy) and its compounds	0.00	0.00	0.00	164.76	0.00

Acids or Bases	Catalysts	Abatement Residues	Used Oil	Other	2002	2001	Change 2002–2001	% Change 2002–2001
0.00	0.00	0.00	0.00	863 985.0	863 985.00	900 794.00	-36 809.00	-4.09
0.00	0.00	0.00	0.00	0.00	62.75	10.03	62.75	625.62
0.00	0.00	0.00	0.00	0.00	23.78	45.33	-21.54	-47.52
0.00	0.00	0.00	0.00	0.00	9.50	10.61	-1.11	-10.46
0.00	0.00	0.00	0.00	0.00	5.60	30.43	-24.83	-81.60
0.00	0.00	0.00	0.00	0.00	5.29	42.29	-37.00	-87.49
0.00	0.00	0.00	0.00	0.00	5.13	24.49	-19.36	-79.05
0.00	0.00	0.00	0.00	863 985.0	864 097.10	900 957.2	-36 850.1	-4.26
0.00	0.00	0.09	0.00	0.00	19 086.97	18 945.86	141.11	0.07
0.00	0.00	0.00	0.00	51.88	17 216.92	7 237.33	9 979.59	137.89
0.00	0.00	0.00	0.00	39.55	15 182.10	4 864.34	10 317.77	212.11
0.00	0.00	0.00	0.00	0.83	11 849.24	1 909.85	9 939.39	520.57
0.00	0.00	0.14	0.00	0.00	4 095.06	792.70	3 302.36	416.60
0.00	0.00	3.02	0.00	0.00	2 339.62	1 958.68	380.94	19.45
0.00	0.00	0.00	0.00	0.00	1 840.36	2 108.89	-268.53	-12.73
0.00	0.00	3.25	0.00	92.26	71 610.27	37 817.65	33 792.63	47.19
62 048.16	11 457	0.00	0.00	1 549.98	75 219.05	66 078.50	9 140.55	13.83
232.78	0.00	0.00	0.00	0.00	232.78	289.09	-56.31	-19.48
0.00	0.00	0.00	0.00	0.00	164.76	220.63	-55.87	-25.32

Off-site Transfers for Recycling and Energy Recovery

CAS No.	Pollutant	Energy Recovery	Solvents	Organics	Metals	Inorganics
NA	Nickel (and its compounds)	0.00	0.00	0.00	135.93	0.00
NA	Copper (and its compounds)	0.00	0.00	0.00	31.55	0.00
1319-77-3	Cresol (mixed isomers and their "salts")	NV	NV	NV	NV	NV
Total		0.00	0.0	0.0	483.4	12.74
Rank # 4	**NAICS 2211 – Electricity Generation, Transmission and Distribution**					
NA	Copper (and its compounds)	0.00	0.00	0.00	54 243.00	0.48
7440-62-2	Vanadium (except when in an alloy) and its compounds	0.00	0.00	0.00	246.79	136.69
NA 08	Lead (and its compounds)	0.00	0.00	0.00	208.25	0.16
NA	Manganese (and its compounds)	0.00	0.00	0.00	8.94	5.35
NA	Nickel (and its compounds)	0.00	0.00	0.00	72.44	1.20
Total		0.00	0.00	0.00	54 779.42	143.88
Rank # 5	**NAICS 3314 – Non-Ferrous (except aluminum) Production and Processing**					
NA	Lead (and its compounds)	0.00	0.00	0.00	26 652.00	4.74
NA	Copper (and its compounds)	0.00	0.00	0.00	6 006.01	0.00
7664-93-9	Sulphuric acid	0.00	0.00	0.00	151.16	0.00
NA	Zinc (and its compounds)	0.00	0.00	0.00	1 350.18	0.00
NA	Arsenic (and its compounds)	0.00	0.00	0.00	331.35	0.00
Total		0.00	0.00	0.00	34 490.7	4.74

Notes: *NV – no value reported; Zero – zero value reported; NA – Not applicable.*

Acids or Bases	Catalysts	Abatement Residues	Used Oil	Other	2002	2001	Change 2002–2001	% Change 2002–2001
0.00	16.59	0.00	0.00	0.00	152.51	110 94	41.57	37.47
0.00	0.00	0.00	0.00	0.00	31.55	31.01	0.54	1.74
NV	NV	NV	NV	NV	NV	47.33	-47.33	NA
62 280.94	11 473.5	0.00	0.00	1 549.98	75 800.65	66 777.5	9 023.15	11.90
0.00	0.00	2.45	0.00	35.01	54 280.95	285.52	53 995.43	18 911.26
0.00	0.00	14.21	0.00	126.23	523.92	487.58	36.34	7.45
0.00	0.00	8.61	0.00	19.19	236.21	51.39	184.82	359.64
0.00	0.00	89.08	0.00	110.64	214.02	277.8	-63.78	-22.96
0.00	0.00	4.49	0.00	73.24	151.38	117.8	-33.58	-28.51
0.00	0.00	118.84	0.00	364.31	55 406.48	1 220.09	54 119.23	97.68
0.00	0.00	0.00	0.00	0.73	26 657.47	1 719.84	24 937.63	1 450.00
0.00	0.00	0.00	0.00	0.01	6 006.02	7 341.30	-1335.28	-18.19
3 398.49	0.00	0.00	0.00	0.00	3 549.65	453.47	3 096.18	682.78
0.00	0.00	189.00	0.00	0.01	1 539.19	1 718.12	-178.93	-10.41
0.00	0.00	0.00	0.00	0.00	331.35	387.49	-56.14	-14.49
3 398.49	0.00	189.00	0.00	0.75	38 083.68	11 620.22	26 463.46	69.49

5. References and Bibliography

5.1 Government of Canada

Canadian Environmental Protection Act, 1999. Statutes of Canada 1999. Chapter 33. Act assented to 14 September 1999.

Environment Canada. *Guide for Reporting to the National Pollutant Release Inventory 2002.* Ottawa: Minister of Public Works and Government Services Canada, 2002.

Environment Canada. *2001 National Overview: Final Disposal and Off-site Transfers for Treatment Prior to Final Disposal: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. *2001 National Overview: Highlights: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. *2001 National Overview: Recycling and Energy Recovery: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. *2001 National Overview: Releases: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. *2001 National Overview: Reporting Requirements: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. *2001 National Overview: Summary of 2001 Data: National Pollutant Release Inventory.* Ottawa: Minister of Public Works and Government Services Canada, 2003.

Environment Canada. "Notice with Respect to Substances in the National Pollutant Release Inventory for 2002." *Canada Gazette,* Part I, December 29, 2001.

Environment Canada. "Notice with Respect to Substances in the National Pollutant Release Inventory for 2001 – Amendment." *Canada Gazette,* Part I, December 29, 2001.

Environment Canada. *Supplementary Guide for Reporting to the National Pollutant Release Inventory – Alternate Thresholds – 2000.* Ottawa: Minister of Public Works and Government Services Canada, 2001.

Statistics Canada. *North American Industry Classification System (NAICS) Canada Manual 1997.* Catalogue 12-501-XPE, Ottawa: Statistics Canada, 1998.

Statistics Canada. *Standard Industrial Classification – 1980.* Catalogue 12-501-E, Ottawa: Statistics Canada, 1989.

5.2 Web Sites for Substance Information

5.2.1 Environment Canada

The Green Lane: **www.ec.gc.ca**

National Pollutant Release Inventory On-line Data Search: **www.ec.gc.ca/npri**

CEPA Environmental Registry: **www.ec.gc.ca/CEPARegistry**

New and Existing Substances: **www.ec.gc.ca/substances**

List of Toxic Substances (Schedule 1 of CEPA 1999): **www.ec.gc.ca/CEPARegistry/subs_list/Toxicupdate.cfm**

Management of Toxic Substances: **www.ec.gc.ca/toxics**

Mercury: **www.ec.gc.ca/mercury**

5.2.2 Health Canada

Existing Substances Division: **www.hc-sc.gc.ca/hecs-sesc/exsd/index.htm**

5.2.3 International Links

Agency for Toxic Substances and Disease Registry (ATSDR): **www.atsdr.cdc.gov**

Chemfinder: **chemfinder.cambridgesoft.com**

Commission for Environmental Cooperation (CEC): **www.cec.org**

Environmental Defense Scorecard: **www.scorecard.org**

International Agency for Research on Cancer (IARC): **www.iarc.fr**

International Programme on Chemical Safety (IPCS): **www.inchem.org**

National Toxicology Program (NTP): **ntp-server.niehs.nih.gov**

Organization for Economic Co-operation and Development (OECD): **www.oecd.org/home**

PollutionWatch: **www.pollutionwatch.org**

United Nations Environment Programme (UNEP): **www.unep.org**

World Health Organization: **www.who.int**

5.3 Additional Sources of Information

Agency for Toxic Substances and Disease Registry (ATSDR)
1600 Clifton Road (E29)
Atlanta, GA 30333
U.S.A.
Tel.: (404) 639-6300
Fax: (404) 639-6315
Web site: **www.atsdr.cdc.gov**

Canadian Centre for Occupational Health and Safety
Chemical Evaluation Search and Retrieval System (CESARS)
250 Main Street East
Hamilton, ON L8N 1H6
Tel.: (905) 570-8094
Fax: (905) 572-2206
Web site: **www.ccohs.ca/products/databases/cesars.html**

Commission for Environmental Cooperation (CEC)
393 St. Jacques Street West
Suite 200
Montreal, QC H2Y 1N9
Tel.: (514) 350-4300
Fax: (514) 350-4314
Web site: **www.cec.org**

Health Canada
Publishing Coordinator
Environmental Health Centre
Tunney's Pasture 0801B3
Ottawa, ON K1A 0L2
Tel.: (613) 957-3143
Fax: (613) 941-8632
Web site: **www.hc-sc.gc.ca**

International Agency for Research on Cancer (IARC)
150 cours Albert Thomas
F-69372 Lyon cedex 08
France
Tel.: +33 (0)4 72 73 84 85
Fax: +33 (0)4 72 73 85 75
Web site: **www.iarc.fr**

National Library of Medicine (TOXNET)
8600 Rockville Park, Bldg. 38A
Bethesda, MD 20894
U.S.A.
Tel.: (301) 496-6531
Fax: (301) 480-3537
Web site: **www.nlm.nih.gov/hinfo.html**

Appendix A: Overview of the NPRI

The National Pollutant Release Inventory (NPRI) is at the centre of the Government of Canada's efforts to track toxic substances. It is a legislated inventory of pollutants released to the environment. The NPRI was established in 1992 to inform Canadians about releases of pollutants from facilities located in their communities, including the amounts discharged to air, water and land and by underground injection and the amounts sent to other facilities for disposal, treatment, or recycling and energy recovery. It also supports a number of environmental initiatives, by providing information that:

- helps governments and others to identify priorities for action;
- encourages industry to take proactive measures to reduce releases;
- allows for tracking of progress in reducing releases;
- supports international commitments; and
- provides information used in the development of new preventive or control instruments such as codes of practice, regulations and guidelines.

The NPRI is a constantly evolving program. Consultation with the public and stakeholders has become an integral part of the changes to the program. Since the NPRI was set up, substances have been added and deleted, the thresholds at which substances are reported have been adjusted, and the scope of the inventory has been expanded to collect data on recycling and preventing pollution. Further refinements are planned for future years.

The NPRI program is administered by Environment Canada under the authority of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). Owners or operators of facilities that manufacture, process, or otherwise use one or more of the NPRI-listed substances under prescribed conditions are required to submit an annual report to Environment Canada on the releases and transfers of those substances.[1] See **Appendix B** for definitions of releases, disposals and transfers.

All non-confidential information collected by the NPRI is available to the public on Environment Canada's Web site in the form of downloadable databases, reports and analyses, and through a linked query site that allows the user to view information submitted by an individual facility. See **www.ec.gc.ca/npri** or contact your nearest NPRI office.

What's New for the 2002 NPRI?

The following changes were made to the NPRI for the 2002 reporting year:

Addition of New Substances

- Hexavalent chromium compounds
- Criteria air contaminants (CAC)
  - Carbon monoxide (CO)
  - Oxides of nitrogen (NO_x)
  - Sulphur dioxide (SO_2)
  - Particulate matter (PM)
    - equal to or less than 2.5 microns in diameter ($PM_{2.5}$)
    - equal to or less than 10 microns in diameter (PM_{10})
    - total particulate matter (TPM)
  - Volatile organic compounds (VOCs)

[1] *The requirements for the 2002 NPRI were published in the* Canada Gazette, *Part I, on December 29, 2001.*

Changes in Mass and Concentration Thresholds

- Cadmium (and its compounds): The threshold for reporting based on mass was reduced from 10 tonnes to 5 kg and 0.1% concentration.
- Arsenic (and its compounds), lead (and its compounds), hexavalent chromium and tetraethyl lead: The threshold for reporting was based on mass reduced from 10 tonnes to 50 kg and 0.1% concentration.
- Chromium (and its compounds) no longer includes hexavalent chromium.

Changes Where Employee Threshold (20 000 hours) Does Not Apply

- Throughput was reduced from 100 to 26 tonnes per year for incineration of non-hazardous, solidwaste, biomedical and hospital waste.
- Terminal operations (for storage or transfer of crude and refined petroleum products).
- Discharges from wastewater collection systems of 10 000 m^3 or more into surface waters.

Changes to Exemptions for Specific Facilities

- Painting, stripping or rebuilding components for maintenance and repair of transportation vehicles is now included in the NPRI.
- Terminal operations used in the distribution or storage of fuels for retail sale are now included in the NPRI.

Pollution Prevention

- Reporting of pollution prevention activities has been expanded.

Administrative Changes

- Facilities that reported in 2001 must notify Environment Canada if they are not reporting for 2002.

Changes in Definitions

- Facility – now includes pipeline installation.
- Other use – includes use or disposal.

NPRI Substance List for 2002

For the 2002 reporting year, 273 substances were listed on the NPRI, 82 of which were determined to be toxic under CEPA 1999. There were 241 substances listed with the original 1993 NPRI reporting criteria of 10 tonnes and 1% concentration, excluding by-products. Thirty-two substances were listed with different reporting criteria – mercury, cadmium, arsenic, lead and their compounds, hexavalent chromium compounds, tetraethyl lead, 17 individual polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzo-*p*-dioxins/polychlorinated dibenzofurans (dioxins/furans), hexachlorobenzene (HCB), and seven CAC.

The CAC were added to the NPRI for the 2002 reporting year. As a result, the total number of substance reports submitted for the 2002 NPRI almost doubled compared to 2001. Information on CAC is summarized separately from other NPRI substances, which are referred to as "NPRI pollutants".

The total list of NPRI substances for the 2002 reporting year can be found on the NPRI Web site at **www.ec.gc.ca/npri**.

2002 National Overview Series

The 2002 NPRI National Overview (referred to as the "2002 National Overview") consists of the following series of documents:

- 2002 National Overview – Reporting Requirements;
- 2002 National Overview – Summary of Data;
- 2002 National Overview – On-site Releases of NPRI Pollutants;
- 2002 National Overview – Final Disposal and Off-site Transfers for Treatment Prior to Final Disposal; and
- 2002 National Overview – Off-site Transfers for Recycling and Energy Recovery.

The 2002 National Overview Series includes data as they appeared in the NPRI database on December 18, 2003.

In addition to the National Overview Series, Environment Canada has another report entitled *Informing Canadians on Pollution*. This report is a snapshot of pollution from industrial and commercial companies in Canada. In addition to describing progress on sector and pollutant releases and disposal and recycling trends, this report includes special sections on toxic substances, pollution prevention, managing pollution in Canada, and tips on how communities and individuals can use the NPRI.

New Groupings for Releases and Transfers

The following groupings were used to summarize information collected through the NPRI for the 2001 reporting year and continued for the 2002 reporting period:

- On-site Pollutant Releases
  - air
  - water
  - land: includes spills, leaks and other
- Disposal
  - on-site disposal: landfill, land treatment, and underground injection
  - off-site disposal: landfill, land treatment, underground injection, and storage
  - off-site transfers for treatment prior to final disposal:
    - physical treatment
    - chemical treatment
    - biological treatment
    - incineration or thermal treatment where energy is not recovered
    - treatment at a municipal sewage treatment plant (MSTP)
- Off-site Transfers for Recycling and Energy Recovery
  - recycling
  - energy recovery

As a result of consultations with stakeholders, new groupings were developed for on-site releases. It should be noted that "releases to land" no longer include disposal. The new groupings are different from those found in the *Guide for Reporting to the National Pollutant Release Inventory 2002*. In 2003, these changes were included in the *Guide for Reporting to the National Pollutant Release Inventory 2003* and the software for reporting to the NPRI.

Appendix B: Detailed Data Elements Reported to the NPRI

On-site Releases

An on-site release is a discharge of an NPRI-listed pollutant to the environment, within the physical boundaries of the facility. This includes:

- emissions to air – discharges through a stack, vent, or other point release, losses from storage and handling of materials, fugitive emissions, spills and accidental releases, and other non-point releases;
- releases to surface waters – discharges; spills, and leaks, but not including discharges to municipal wastewater treatment plants (which are reported under off-site transfers for treatment); and
- releases to land – spills, leaks and other.

Final Disposal Activities – On Site and Off Site

The following activities or operations are included in the category classified as "final disposal" – on site and off site:

- containment – two forms of containment are identified:
  - i) landfill; and
  - ii) other storage;
- underground injection at an off-site location;
- land treatment – for the purpose of land application or land farming; and
- off-site final disposal for storage.

Off-site Transfers for Treatment Prior to Final Disposal

A shipment of an NPRI-listed substance may be transferred to an off-site location for treatment prior to final disposal. The treatment processes include:

- physical treatment (e.g., drying, evaporation, encapsulation or vitrification);
- chemical treatment (e.g., precipitation, stabilization or neutralization);
- biological treatment (e.g., bio-oxidation);
- incineration or thermal treatment where energy is not recovered; and
- treatment at a municipal sewage treatment plant.

Off-site Transfers for Recycling and Energy Recovery

A shipment of an NPRI-listed substance may be transferred to an off-site location for recycling and energy recovery. "Recycling" refers to activities that keep a material or a component of the material from becoming a waste destined for final disposal. Nine types of recycling operations are identified:

- recovery of solvents;
- recovery of organic substances (other than solvents);
- recovery of metals and metal compounds;
- recovery of inorganic materials (other than metals);
- recovery of acids and bases;
- recovery of catalysts;
- recovery of pollution abatement residues;
- refining or reuse of used oil; and
- other recovery, reuse or recycling activities.

An NPRI substance may be sent for energy recovery when the substance or the material containing it has sufficient energy content (BTU value) to allow its use as an alternative to fossil fuels or other forms of energy.